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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/620,099	07/14/2003	Rebekka M. Wachter	026069-151480US	8511
20350	7590	10/22/2007	EXAMINER	
TOWNSEND AND TOWNSEND AND CREW, LLP			NASHED, NASHAAT T	
TWO EMBARCADERO CENTER			ART UNIT	PAPER NUMBER
EIGHTH FLOOR			1656	
SAN FRANCISCO, CA 94111-3834				
MAIL DATE		DELIVERY MODE		
10/22/2007		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)
	10/620,099	WACHTER ET AL.
	Examiner	Art Unit
	Nashaat T. Nashed, Ph. D.	1656

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 10 September 2007.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 143-146, 148-153 and 188-193 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 143-146, 148-153 and 188-193 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
- 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) Notice of Informal Patent Application
- 6) Other: Sequence listing error report.

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The application has been amended as requested in the communication filed September 10, 2007. Accordingly, claims 143, 144, and 188-190 have been amended and new claims 191-193 have been entered.

Claims 143-146, 148-153, and 188-193 are pending and under consideration.

The sequence listing in a computer readable form (CRF) filed September 10, 2007 is not accepted because of the errors noted on the attached error report. A new CRF containing all the correction cited in the error report is required for reasons of record.

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 143-146, 148-153, and 188-193 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-6 and 29-37 of U.S. Patent No. 6,150,176 ('176) for the reasons set forth in the prior Office action, mailed May 25, 2005.

Claims 143-146, 148-153, and 188-193 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 and 4 of U.S. Patent No. 6,780,975 ('975) for the reasons set forth in the prior Office action, mailed May 25, 2005.

In response to the above rejections, applicants requested to held he rejection in abeyance until the claims are found allowable over the prior art.

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The rejection will remain on the record until applicants file a terminal disclaimer. New claims 191-193 are included in these rejections because they are directed to the same subject matter.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 143-146, 148-153, 188, 189, 191, and 193 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement for the reasons set forth in the prior Office action mailed 3/6/07.

In response to the above rejection, applicants reviewed the Wands factor (Forman factor) separately.

Applicants' arguments filed September 10, 2007 have been fully considered, but they are found unpersuasive. The claim reads on any fluorescent protein having 85% or 90% sequence homology to SEQ ID NO: 2. Enablement requires a disclosure sufficient to allow a person of skill in the art to practice the full scope of the claimed invention without undue experimentation. The previous Office action sets out a *prima facie* case of non-enablement, explaining by sound scientific reasoning why a person of ordinary skill in the art would doubt that the guidance of the specification would enable practice of the full scope of the claimed invention without undue experimentation. Applicants have presented no evidence or, indeed, any arguments to establish the adequacy of the disclosure to enable the scope of the instant claims. Applicants merely assert that the claims are enabled and one of ordinary skill in the art can make mutants. Applicants make no effort to explain why they consider the disclosure of mutants comprising the mutation of handful amino acid residues is sufficient enablement for mutants comprising changing 15% (36 residues) or 10% (24 residues) of the amino acid residues of SEQ ID NO: 2, or any natural fluorescent protein variant of SEQ ID NO: 2 having 85% or 90% sequence homology. Conclusory statements unsupported by evidence or scientific reasoning are insufficient to overcome the *prima facie* case of non-enablement set out in the previous Office action.

The claims are free of prior art.

No claim is allowed.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

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§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nashaat T. Nashed, Ph. D. whose telephone number is 571-272-0934. The examiner can normally be reached on MTWTF.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kathleen K. Bragdon can be reached on 571-272-0931. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Nashed/
Nashaat T. Nashed, Ph. D.
Primary Examiner
Art Unit 1656

=====

Sequence Listing could not be accepted due to errors.

See attached Validation Report.

If you need help call the Patent Electronic Business Center at (866) 217-9197 (toll free).

Reviewer: Anne Corrigan

Timestamp: Thu Oct 11 14:24:59 EDT 2007

=====

Reviewer Comments:

<210> 3

<211> 720

<212> DNA

<213> Artificial sequence

<220>

<223> Engineered Aequorea-related fluorescent protein

<400> 3

atggtgagca agggcgagga gctgttcacc ggggtggtgc ccatcctggt cgagctggac
60

ggcgacgtaa acggccacaa gttcagcgtg tccggcgagg gcgagggcga tgccacctac

The above <223> response mentions a protein; however, this is not a protein sequence.

<210> 6

<211> 162

<212> TYPE: PRT

<213> Artificial sequence

<220>

<223> Fragment of engineered Aequorea-related fluorescent protein
S65T, positions 68 to 229

<400> 6

Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys Arg His Asp Phe
1 5 10 15
Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu Arg Thr Ile Phe

Please remove the "TYPE:" heading in the above <212> response. Do not show any alphabetical headings. Also, the top amino acid line is not properly aligned with its amino acid numbers.

<210> 23
<211> 37
<212> PRT
<213> Artificial sequence
<220>
<223> His-tag amino acid sequence
<400> 23

Please provide more information in the <223> response above; please give the source of the genetic material.

Application No: 10620099 Version No: 2.0

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Output Set:

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Finished: 2007-09-20 14:59:00.108
Elapsed: 0 hr(s) 0 min(s) 1 sec(s) 583 ms
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Total Errors: 8
No. of SeqIDs Defined: 23
Actual SeqID Count: 23

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W 213	Artificial or Unknown found in <213> in SEQ ID (4)
W 213	Artificial or Unknown found in <213> in SEQ ID (5)
E 310	Invalid sequence type in <212> in SEQID: (6)
W 213	Artificial or Unknown found in <213> in SEQ ID (6)
E 323	Invalid/missing amino acid numbering SEQID (6) POS (2)
E 323	Invalid/missing amino acid numbering SEQID (6) at Protein (5)
E 323	Invalid/missing amino acid numbering SEQID (6) POS (6)
E 323	Invalid/missing amino acid numbering SEQID (6) at Protein (10)
E 323	Invalid/missing amino acid numbering SEQID (6) POS (11)
E 323	Invalid/missing amino acid numbering SEQID (6) at Protein (15)
E 323	Invalid/missing amino acid numbering SEQID (6) POS (16)
W 213	Artificial or Unknown found in <213> in SEQ ID (7)
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W 213	Artificial or Unknown found in <213> in SEQ ID (9)
W 213	Artificial or Unknown found in <213> in SEQ ID (10)
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W 213	Artificial or Unknown found in <213> in SEQ ID (12)
W 213	Artificial or Unknown found in <213> in SEQ ID (13)
W 213	Artificial or Unknown found in <213> in SEQ ID (14)

Input Set:

Output Set:

Started: 2007-09-20 14:58:58.525
Finished: 2007-09-20 14:59:00.108
Elapsed: 0 hr(s) 0 min(s) 1 sec(s) 583 ms
Total Warnings: 21
Total Errors: 8
No. of SeqIDs Defined: 23
Actual SeqID Count: 23

Error code	Error Description
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W 213	Artificial or Unknown found in <213> in SEQ ID (17)
W 213	Artificial or Unknown found in <213> in SEQ ID (18)
W 213	Artificial or Unknown found in <213> in SEQ ID (19)
W 213	Artificial or Unknown found in <213> in SEQ ID (20)
W 213	Artificial or Unknown found in <213> in SEQ ID (21)
W 213	Artificial or Unknown found in <213> in SEQ ID (22) This error has occurred more than 20 times, will not be displayed

<110> WACHTER, Rebekka M.
REMINGTON, S. James
<120> LONG WAVELENGTH ENGINEERED FLUORESCENT PROTEINS
<130> 026069-151480

<140> 10620099
<141> 2003-07-14
<150> US 09/575,847
<151> 2000-05-19
<150> US 08/974,737
<151> 1997-11-19
<150> US 08/911,825
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<213> Aequorea victoria
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tattatcaac aaaatactcc aattctcgat ggcctgtcc ttttaccaga caaccattac	600
ctgtcccacac aatctgccct ttgaaagat cccaaacgaaa agagagacca catggcctt	660
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<213> Aequorea victoria
<400> 2

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20	25	30	
Gly Glu Gly Asp Val Thr Tyr Gly Lys Leu Thr Leu Lys Phe Ile Cys			
35	40	45	
Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr Phe			
50	55	60	
Ser Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys Arg			
65	70	75	80
His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Gln Arg			
85	90	95	
Thr Ile Phe Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu Val			
100	105	110	

Lys	Phe	Glu	Gly	Asp	Thr	Leu	Val	Asn	Arg	Ile	Glu	Leu	Lys	Gly	Ile
115						120					125				
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130						135					140				
Tyr	Asn	Ser	His	Ash	Val	Tyr	Ile	Met	Ala	Asp	Lys	Gln	Lys	Asn	Gly
145						150				155			160		
Ile	Lys	Val	Asn	Phe	Lys	Ile	Arg	His	Asn	Ile	Glu	Asp	Gly	Ser	Val
						165				170			175		
Gln	Leu	Ala	Asp	Tyr	Tyr	Gln	Gln	Asn	Thr	Pro	Ile	Leu	Asp	Gly	Pro
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Val	Leu	Leu	Pro	Asp	Asn	His	Tyr	Leu	Ser	Thr	Gln	Ser	Ala	Leu	Ser
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Lys	Asp	Pro	Asn	Glu	Lys	Arg	Asp	His	Met	Val	Leu	Leu	Glu	Phe	Val
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<211> 720

<212> DNA

<213> Artificial sequence

<220>

<223> Engineered Aequorea-related fluorescent protein

<400> 3

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ctcggtacca	ccttcggcta	cggcgtgcag	tgcttcgc	gctaccccg	ccacatgaag	240
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aagctggagt	acaactacaa	cagccacaac	gtctatata	tggccgacaa	gcagaagaac	480
ggcatcaagg	tgaacttcaa	gatccgccc	aatatcgagg	acggcagcgt	gcagcccgcc	540
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<212> PRT

<213> Artificial sequence

<220>

<223> Engineered Aequorea-related fluorescent protein

<400> 4

Met	Val	Ser	Lys	Gly	Glu	Glu	Leu	Phe	Thr	Gly	Val	Val	Pro	Ile	Leu
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						20			25			30			
Glu	Gly	Glu	Gly	Asp	Ala	Thr	Tyr	Gly	Lys	Leu	Thr	Leu	Lys	Phe	Ile
						35			40			45			
Cys	Thr	Thr	Gly	Lys	Leu	Pro	Val	Pro	Trp	Pro	Thr	Leu	Val	Thr	Thr
						50			55			60			
Phe	Gly	Tyr	Gly	Val	Gln	Cys	Phe	Ala	Arg	Tyr	Pro	Asp	His	Met	Lys
65						70			75			80			
Gln	Gln	Asp	Phe	Phe	Lys	Ser	Ala	Met	Pro	Glu	Gly	Tyr	Val	Gln	Glu
						85			90			95			
Arg	Thr	Ile	Phe	Phe	Lys	Asp	Asp	Gly	Asn	Tyr	Lys	Thr	Arg	Ala	Glu

100	105	110
Val Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly		
115	120	125
Ile Asp Phe Lys Asp Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr		
130	135	140
Asn Tyr Asn Ser His Asn Val Tyr Ile Met Ala Asp Lys Gln Lys Asn		
145	150	155
Gly Ile Lys Val Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser		
165	170	175
Val Gln Pro Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly		
180	185	190
Pro Val Leu Leu Pro Asp Asn His Tyr Leu Ser Tyr Gln Ser Ala Leu		
195	200	205
Ser Lys Asp Pro Asn Glu Lys Arg Asp His Met Val Leu Leu Glu Phe		
210	215	220
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<212> PRT

<213> Artificial sequence

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<223> Fragment of engineered Aequorea-related fluorescent protein
S65T, positions 2 to 64

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<210> 6

<211> 162

<212> TYPE: PRT

<213> Artificial sequence

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<223> Fragment of engineered Aequorea-related fluorescent protein
S65T, positions 68 to 229

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Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu Arg Thr Ile Phe		
20	25	30
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35	40	45
Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly Ile Asp Phe Lys		
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Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr Asn Tyr Asn Ser		
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His Asn Val Tyr Ile Met Ala Asp Lys Gln Lys Asn Gly Ile Lys Val		
85	90	95
Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Ser Val Gln Leu Ala		
100	105	110

Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro Val Leu Leu
115 120 125
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Gly Ile

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1 5

<210> 8
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1 5

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His Lys Asn Pro Gln Thr
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<210> 20
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1 5

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<213> Artificial sequence
<220>
<223> Localization sequence targeting mitochondrion
<400> 21
Met Leu Arg Thr Ser Ser Leu Phe Thr Arg Arg Val Gln Pro Ser Leu
1 5 10 15
Phe Arg Asn Ile Leu Arg Leu Gln Ser Thr
20 25

<210> 22
<211> 4
<212> PRT
<213> Artificial sequence
<220>
<223> Localization sequence targeting the endoplasmic reticulum
<400> 22
Lys Asp Glu Leu
1

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<210> 23
<211> 37
<212> PRT
<213> Artificial sequence
<220>
<223> His-tag amino acid sequence
<400> 23

Met Arg Gly Ser His His His His His Gly Met Ala Ser Met Thr
      1           5           10          15
Gly Gly Gln Gln Met Gly Arg Asp Leu Tyr Asp Asp Asp Lys Asp
      20          25          30
Pro Pro Ala Glu Phe
      35

```